OFFICIAL STATISTICS:

WHAT THEY CONTAIN AND HOW TO USE THEM

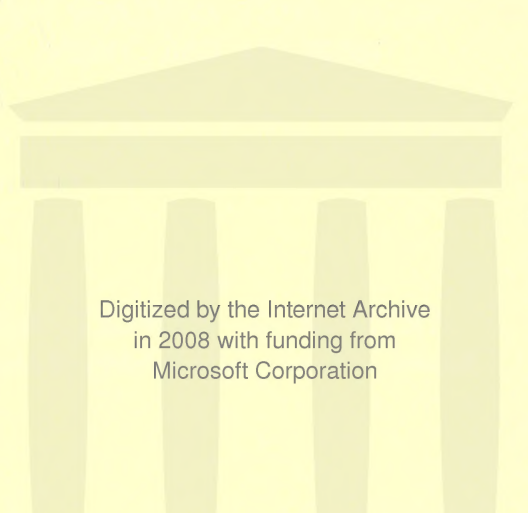
THE WORLD OF TO-DAY

OFFICIAL STATISTICS

WHAT THEY CONTAIN AND HOW TO USE THEM

BY
ARTHUR L. BOWLEY, Sc.D.
Professor of Statistics in the University of London.

HUMPHREY MILFORD
OXFORD UNIVERSITY PRESS
LONDON EDINBURGH GLASGOW COPENHAGEN
NEW YORK TORONTO MELBOURNE CAPE TOWN
BOMBAY CALCUTTA MADRAS SHANGHAI PEKING
1921



CONTENTS.

OFFICIAL STATISTICS: WHAT THEY CONTAIN AND HOW TO USE THEM

Introduction

In order that a Government should perform its administrative and executive functions efficiently, it is necessary that it should be adequately informed on such subjects as the size and local distribution of the population, the resources of the country, the national income and taxable capacity, the magnitude of internal and external trade, and the means of communication. As the duties thrown on the administration have increased, knowledge of social conditions, of health, of the details of the economic situation and of many other affairs has become more and more necessary. The measurable aspects of these subjects form the material of national statistics, which are called official when the information is collected and tabulated by Government departments. Such statistics were in the past primarily for the use of the administration and were often kept private; but since the actions of Government have become more directly the concern of the people as well as of Parliament, administrative statistics have been published, and especially during the past thirty years other statistics more directly designed for information on matters of public interest without reference to executive action have been collected and published. The whole mass of information of either kind forms "official statistics," and it is the object of this book to afford some help in understanding their nature, the methods of their publication and their use.

In this country the collection and publication of statistics have never been centralized, but each Government

department has followed its own course and issued reports with little reference to the publications of other departments, and with no reference at all to any systematic and co-ordinated scheme. Many efforts have been made both by official and unofficial persons, who understand the difficulties and increasing importance of statistics, to obtain a central statistical bureau, which should direct, or at least co-ordinate, the reports of the departments, make good the deficiencies, and interpret the results to the public (as for example is already done in Australia), but so far nothing has been accomplished in this direction; the present tendency seems rather to destroy the little system that has been achieved, by the rearrangement of the functions of old departments and the creation of new, which proceed as in the past to issue copious reports independently of each other. The result of this chaos is that very careful and expert study is necessary before the significance and limitations of published statistics on any subject can be appreciated, and during the past six years the difficulties have been increased by the practice of the departments of marking their printed statistics as confidential, thus rendering them unavailable for general use. It is also particularly inconvenient at the present time to construct any guide to official publications, since many of those which were current annually before the war were delayed or dropped after 1914, and it is not possible to say which will reappear or what their form or contents will be.

There are, however, two Abstracts which between them contain summaries of and are to some extent indexes to the principal public statistics, viz.: the Annual Abstract of Statistics of the United Kingdom (last issue 65th number, for 1917, Cmd. 491*, price 1s. 9d.) which

* Official reports here in question are either numbered consecutively as C.1, C.2 . . . prior to 1900, Cd.1, Cd.2 . . . . from 1900 to 1919, and Cmd.1, Cmd.2 . . . currently (C., Cd., Cmd. being abbreviations for papers by *Command*), or *e.g.* as H. of C. 360 of 1913, meaning the 360th paper presented to the House of Commons in 1913. In ordering them it is sufficient to state the title very briefly, together with the symbol, number and date.

contains tables on Revenue, Trade, Agriculture, Population, etc., and the Annual Abstract of Labour Statistics (last issue 17th Report for 1913, Cd. 7733) which relates to prices, wages, unemployment, etc. New issues of these may be expected early in 1921. The first-named generally gives a specific reference to the reports from which the tables are taken ; the Labour Abstract, on the other hand, in some cases contains tables which are not published elsewhere. Apart from these Abstracts the most convenient source for statistics relating to wages, employment, etc., is the *Labour Gazette* (monthly, price 6d.), and a file of this *Gazette* is necessary for following current movements. The January number contains brief summaries for the previous year.

These summaries, however, can only be used safely by those who have already made themselves familiar from the original reports with the exact meaning of the material they contain ; if, for example, one knows what is officially understood by a change of wages, or by export of foreign or colonial goods, one can use the Abstracts for following their variations year by year. The first thing to realise about official, and indeed all, statistics, is that their meaning is always technical and generally not precisely that which might at first sight be expected. Some examples will show how the conditions of collecting data and the difficulties of definition result in strained use of words. The recorded population of Brighton is the total of the number of persons who happened to sleep in the borough on a particular night in April, 1911. Exports are classified as of home production, even if their materials are of foreign origin, if the final manufacturing process was done in this country. The measurement of the change of the cost of living is made on the hypothesis that people purchase precisely the same kind and quality of goods as it is assumed they did in 1914 on the basis of an investigation in 1904. The total income paying tax in a particular year is a medley of the incomes received by people in the previous three or even five years, and contains the rents (or a fraction or multiple of the rents)

paid by farmers as farmers' income instead of their (unknown) profits. The percentage measurement of unemployment generally quoted arises solely from the records of a limited number of trade unions which pay unemployment benefit. The birth-rate in 1920 is based on the recorded population of 1911 brought up-to-date by complicated and hazardous estimates. The wheat harvest is computed partly from imperfect farmers' reports and partly from the estimates of a number of agents of the Board of Agriculture.

Statistics on any subject have generally a long history. In the beginning an organisation had to be initiated to collect records of those things connected with the subject which it was anticipated could be counted or measured. Experiment showed what facts could be ascertained and where the organisation was weak; criticism and analysis defined and interpreted the meaning of the totals and averages obtained, and showed their relation to the facts of which knowledge was desired. The organisation was gradually improved, new methods were devised for making good deficiencies, the meaning of the totals was modified and new definitions were necessary. When one has followed the process by studying successive reports or by reading a well-informed book or article on the subject the limitation and meaning of the totals can be appreciated; failing this, the best plan is first to think out for one's self what one would expect or wish to be included in a total (*e.g.* of the number of persons unemployed), then to read very critically word by word the heading, explanation and notes in the summary (always inserting some such phrase as "recorded by" or "reported to" or "computed by" the department concerned), and then to get the larger report on which the abstract is based and study whatever information is there given about the method and purpose of the investigation. The critical faculty should be very alert when statistics are in question; the published heading may be pedantically and officially correct, but it will not contain such a

statement as "every word is used in a technical sense and has a special meaning only known to the officials who made the compilation, the part that is not recorded is more important than that which is, where the facts are not known an estimate has been made by a method which cannot for departmental reasons be divulged, and the method of computation has been modified since the last issue of the numbers," yet part or all of this is sometimes implied.

To obtain materials for such a study access to the reports is necessary, and though government publications are cheap for their bulk, both cost and size are too great for the ordinary individual. It is, however, quite possible for public libraries to get them, and there seems to be no good reason why the principal reports should not be systematically obtained in every populous district. Most people can afford the *Labour Gazette* and the Abstracts, and study circles could purchase the few reports that relate to any particular subject. Libraries should at least contain the periodic indexes to recent publications, from which can be found what documents exist.*

Statistics are generally presented in tables, in which are found complicated systems of lines and columns, details and totals, percentages and averages, such as are necessary to bring together a number of related facts. In order to master the meaning of them, it is often advisable to study the headings of the columns and the description of the lines very carefully, and to test the meaning of the totals, averages, etc., by obtaining them afresh arithmetically. Some of the tables in the chapters that follow need examination of this kind.

The significance of a number is generally only appreciated when it can be compared with a second number. Tables bring together the records of different years or places, or show parts of a total in relation to the whole. Thus if we are considering the number of un-

* Messrs. P. S. King & Son, Great Smith Street, Westminster, S.W., issue monthly lists of government publications.

employed we need to know also the whole number of persons in the class to which the unemployed belong; if we have figures of pauperism we should also have statements of the whole population, and we ought to be able to analyse the figures according to the age, sex, and occupation of the paupers, as well as in relation to the causes of their destitution and the methods of their relief. The facts that we should know ought to be thought out apart from the tables; and if, as is often the case, the tables do not contain the necessary information, they should be used with great caution.

When it is possible accounts from different sources and different points of view should be used. Thus national income can be reckoned either by adding up estimates of the incomes, salaries and earnings of individuals, or by using the Census of Production to find what aggregate of goods is available in a year. Earnings ascertained from employers' statements can be compared with the minimum wages recognized by trade unions. Working-class budgets can be criticised by means of the national statistics of consumption. The adequacy of the population census can be tested by the records of births, deaths and immigration between one Census and the next. It is perhaps the only advantage of the want of co-ordination of official statistics, that we are not only able but forced to study records of different origins before we can get a comprehensive view.

In the following chapters a very brief account is given of the more important reports and papers officially published in recent years containing statistics of general interest. The main omission is that of reports on revenue, taxation and rates; something had to be sacrificed for the sake of space, and these reports have a financial rather than a statistical bearing. An attempt is made to illustrate the use of the reports by bringing together in some cases all that is known in relation to a particular subject, and by retabulating details scattered through a report so as to show how

the various tables are connected. If a reader has the patience to take the Census volumes or the Report on Pauperism and study them in relation to the tables here given he will get a useful experience of the nature of official records. In all cases sufficiently exact references are given to the originals unless they are unimportant or out of date, and it is hoped that all the more useful documents are enumerated in one section or another. The intention has been to show by example what information (in the bulk and in detail) the reports contain. The tables and numbers given should not be used without reference to the originals; for apart from some particular analysis, the technical terms are not completely explained, and the rules of criticism already indicated should be freely applied. No one should attempt to use statistics unless he is prepared to devote considerable time and thought to ascertain the exact meaning, nature and limitations of the particular reports which relate to the subject in question.

CHAPTER I.—POPULATION.

1.—Population.

The only general source of information about the population of this country is the decennial Census, of which the 13th will be taken in April, 1921. In the future it may be repeated every five years as regards the more important details. Separate organisations conduct the Census in England and Wales, in Scotland, and in Ireland; these now work under a joint committee. For each country bare totals of the number of males and females in every district are issued a few weeks after the enumeration. Then follow for England and Wales a series of volumes dealing with special subjects in detail, while for Scotland and for Ireland a series of county volumes is issued.* About three years after the Census a General Report has generally been published summarizing and discussing all the information for England and Wales, and bringing together the principal statistics for the three parts of the United Kingdom, with additional tables relating to the British Empire (Cd. 8491 of 1917, price 4s. 6d.). A separate volume is also issued for the Isle of Man and Channel Islands.

The population shown for each district is simply the total of the persons actually present on the night of the Census, including travellers arriving the following morning, whether they live there or are visitors, and whether they are British or foreigners. The date is so chosen that the great majority of people are at home, but the result does not show the importance of holiday

* County volumes, containing the tables relating to the county, extracted from the general volumes, are also issued. Every library should have the volume for the county in which it is situated.

resorts, which can be better judged by the numbers of houses they contain. The business districts of London and other large cities are credited only with the relatively small number of people who sleep in them. Soldiers, sailors and fishermen abroad or afloat (except fishermen returning to port during the week) are *not* included in the Census total.

The unit in the Census is the Civil Parish. In Volume I. (Cd. 6258, 5s. 4d.) the area and population of every Civil Parish are given, and these are aggregated into County Boroughs, Municipal Boroughs, other Urban Districts and Rural Districts. In the less important Volume II., they are shown under Registration Districts, whose use is rapidly lapsing. In Volume I. also the Boroughs and Districts are aggregated into Administrative Counties, but the County Boroughs are often excluded from the County totals, and care must be taken in all the volumes to ascertain what is meant by a County.

The subsequent volumes give no further information about the Parishes, but more and more detail is shown as we pass from Rural to Urban Districts, to County Boroughs, to Counties and to England and Wales as a whole.

The nature of the information is well shown by selecting an Urban District and tracing it through the volumes. For this purpose Coalville and Hinckley, two small towns about sixteen miles apart in Leicestershire, may be taken. Hinckley is one Civil Parish, Coalville consists of three Wards, each a Civil Parish. The information is abbreviated in the following extracts :—

AREA AND POPULATION. Vol. I., pp. 194, 536, 627.

	Coalville. 6,229 acres.		Hinckley. 3,729 acres.	
	1901.	1911.	1901.	1911.
Families, &c.	3,149	3,860	2,469	2,873
Persons	15,281	18,548	11,304	12,837
Male	—	9,655	—	6,006
Female	—	8,893	—	6,831

The increase in Coalville since 1901 is attributed to the development of railway wagon works and collieries. In Coalville there were 14 institutions (or households with more than 15 inmates) together containing 111 persons, in which are included a hospital with two officials and no patients. Fourteen persons were in caravans or other shelters. In Hinckley there were 8 institutions containing 168 persons, including a workhouse with 8 officials and 55 male and 32 female inmates, and a hospital with 7 officials and 7 patients. There were also 6 persons in caravans, &c. In neither are there barracks or any canal population.

AGE AND MARRIAGE CONDITION. Vol. VII., p. 87.

	Coalville.		Hinckley.	
	Males.	Females.	Males.	Females.
Under 1 year ...	260	262	135	116
1 to 5* years ...	950	919	543	523
5 „ 10 „ ...	1,133	1,174	663	688
10 „ 15 „ ...	1,031	1,026	671	703
15 „ 25 „ ...	1,828	1,499	1,071	1,423
25 „ 35 „ ...	1,568	1,358	970	1,108
35 „ 45 „ ...	1,240	1,090	787	921
45 „ 55 „ ...	825	748	553	612
55 „ 65 „ ...	493	447	351	383
65 „ 70 „ ...	165	158	101	126
70 and over ...	162	212	161	228
Total ...	9,655	8,893	6,006	6,831

BUILDINGS (Vol. VI., Cd. 6577, p. 134) AND TENEMENTS (Vol. VIII., Cd. 6910, p. 194).

Coalville.	Number inhabited.	Separate occupiers.	Population
Buildings used as dwellings :			
Ordinary dwelling houses ...	3,522	3,553	17,044
Blocks of flats	3	3	9
Shops	237	238	1,107
Hotels, Inns and Public Houses ...	44	44	250
Offices, Warehouses, Workshops, Factories	3	3	7
Institutions	5	5	90
Others	4	4	21
Vessels, Sheds, Vagrants, &c. ...	—	10	20
Totals for whole population ...	3,818	3,860	18,548

* *i.e.*, As much as 1 year and under 5 years.

COALVILLE—*Continued*

	Number inhabited.	Separate occupiers.	Population living more than 2 per room.
Private families : Total	3,844	18,430	629
Occupying tenements of 2 rooms	61	151	21
3 ,,	101	368	39
4 ,,	914	3,973	294
5 ,,	1,553	7,796	232*
6 ,,	890	4,391	22
7 ,,	176	899	21*
8 ,,	75	385	—
9 ,,	37	233	—
10 or more	37	234	—

FAMILIES OF VARIOUS SIZES. COALVILLE.

Number of persons in family.	Number of families.	Number of persons in family.	Number of families.
1	72	9	112
2	467	10	82
3	678	11	29
4	713	12	9
5	637	13	5
6	486	14	0
7	331	15 or more	2
8	221	Total ...	3,844

A cross table shows the number of families of each size for the tenements of each number of rooms.

For County Boroughs the number of children under 10 years is shown in the corresponding table.

From Volume VI. we learn that in Coalville there were also 65 dwelling houses and 5 residential shops empty and 18 houses being built. Of uninhabited buildings there were 19 Places of Worship, 8 Government or Municipal Buildings, 79 Shops, 6 Offices, 34 Warehouses, Workshops or Factories, and 2 Theatres or places of amusement.

* Estimated; each of these contains one "family" of 15 or more persons.

AGE IN RELATION TO OCCUPATION. Vol. X., pp. 402, 440, 518 and Vol. VII., p. 286.

	Coalville.			Hinckley.		
	Occupied.	Unoccupied	Total.	Occupied.	Unoccupied	Total.
Males :						
Age :						
Under 10 ...	0	2,343	2,343	0	1,341	1,341
10—14 ...	98	732	830	100	444	544
14 and over :						
Unmarried ...	—	—	1,622	—	—	1,552
Married ...	—	—	3,575	—	—	2,378
Widowed ...	—	—	285	—	—	191
Total ...	6,198	284	6,482	3,933	188	4,121
Totals ...	6,296	3,359	9,655	4,033	1,973	6,006
Females :						
Age :						
Under 10 ...	0	2,355	2,355	0	1,327	1,327
10—14 ...	30	805	835	83	477	560
Unmarried :						
14—45 ...	1,008	705	1,650	1,818	275	1,942
45 and over ...			63			151
Married :						
14—45 ...	161	3,403	2,440	988	1,431	1,599
45 and over			1,124			820
Widowed :						
14—45 ...	68	358	48	186	246	54
45 and over ...			378			378
Totals ...	1,267	7,626	8,893	3,075	3,756	6,831

In addition to the usual numbers engaged in building, transport and other universal occupations, in Coalville 2,892 men or boys were occupied in coal mines, 177 in stone quarries, 329 at railway wagon works, 317 on railways, and 393 in general engineering. In Hinckley the only men's special occupations are those of hosiery and boot and shoe manufacture, in which 1,222 and 608 respectively were engaged.

For women the only occupation specially named in Coalville is elastic web manufacture, which employs 262, while in Hinckley 2,136 were engaged in the hosiery, and 181 in the boot and shoe manufactures.

In Coalville there were 75 female indoor servants to 1,000 households, in Hinckley 74.

The two towns provide a great contrast. Coalville was developing in men's industries, and in every age group from 14 to 70 the number of men and boys exceeds that of women and girls, while there are few men over 70. Only a small number of women and girls are occupied, and the number of unmarried women is less than in the smaller town. In Hinckley, on the other hand, there is plentiful occupation for women and girls, there are fewer males than females in all age groups over 5 years, and there is a large number of unmarried women.

These tables nearly exhaust the information for Urban Districts with less than 50,000 inhabitants, except that there is a fairly elaborate statement of occupations. We do not know how many married women were occupied, nor in any case whether such women had children, nor the numbers occupied at different ages in detail.

Of the other volumes of the Census of England and Wales, III. and IV. state the populations of Parliamentary and Registration Areas (Cd. 6343 and Cd. 6360); V. (Cd. 6576) is an index to places in the previous volumes; XI. (Cd. 7020) gives details of the numbers of deaf, blind and other afflicted persons; XII. (Cd. 6911) relates to languages spoken in Wales; and XIII. (Cd. 8678) tabulates the number of children born to marriages classified according to the ages of husband and wife and the duration of the marriage; IX. (Birthplaces) and X. (Occupations) are described in the following sections.

Some details relating to the population of districts between the dates of the Censuses are often to be found in the reports of Medical Officers of Health or other publications of Local Authorities.

The population of England and Wales, Scotland and Ireland, is estimated by the Registrars-General for the middle of each year, and the results can be found in the Statistical Abstract of the United Kingdom. The basis of these estimates should be discovered, if possible, in

the Registrars' Annual Reports for the years 1914 onwards to ascertain how soldiers and sailors abroad are treated.

2.—Occupations.

At the taking of the Census every householder states the occupation followed by each member of the household over 10 years old. In the "Classified and Alphabetical Lists of Occupations" (Census Vol. X., Appendix, Cd. 7660) some 20,000 different occupations are catalogued, and classified in detail under XXIII. Orders, 79 Sub-Orders, and 475 Headings. The actual grouping should be studied in Vol. X. (Part I., Cd. 7018, Part II., Cd. 7019, prices 8s. and 6s. 3d.), where some surprising results will be found; *e.g.*, a Letter Carrier is under Order I. ("Engaged in or in connection with the General or Local Government of the Country"), Sub-Order 1 ("National Government"), Heading 3 ("Postmen"), and a Street Musician is under Order III. ("Professional Occupations and Their Subordinate Services"). Great care is needed when dealers and clerks are to be separated from productive workers, and when employers are to be separated from employed.

To show the nature of the information we will abstract the information relating to the Silk Industry. (Order XVIII., Persons Working or Dealing in Textile Fabrics, Sub-Order 3, Silk). There are four headings: Spinning Processes, Weaving Processes, Other Processes, and Undefined. Under these headings 197, 119, 104 and 6 separate occupations are included (among them may be noticed *danters* in silk-throwing, *slayers* in weaving); weaving includes weaving of mixed fabrics, and silk includes artificial silk (Vol. X. App. pp. 161-3).

The districts in which the silk manufacture is carried on can be ascertained from the County tables or from Table XVa and XVb. (Vol. X. Part 1, pp. 386 *sqq.*), which may be thus summarised :—

NUMBER OF WOMEN IN THE SILK INDUSTRY IN 1911.
PRINCIPAL DISTRICTS.

Macclesfield	3,450	Middleton	154
Congleton	411	Rest of Lancashire ...	623
Leek	1,871	London	593
Bradford	2,624	Essex	1,430
Brighouse	909	Sudbury	355
Meltham	134	Rest of Suffolk	126
Rest of West Riding ...	1,299	Norwich	547
Coventry	1,678	Great Yarmouth	611
Nuneaton	261	Somerset	548
Rest of Warwickshire ...	884	Rest of England and Wales*	1,581
Leigh	467		
		Total ...	20,556

The table on p. 22, which is compiled with difficulty from a number of tables of the volume, shows completely all the details that are to be found, with the exception of those discussed in the next paragraphs. It is noticeable that women are predominant in the industry, and that home-working was not extinct.

In Scotland there were 340 males and 810 females employed in the Silk industry, in Ireland 193 males and 119 females (General Report, Cd. 8,491, p. 278), making a total of 31,105 persons in the United Kingdom ; the number in 1901 was 37,459, in 1891 53,101, and in 1881 66,125, so that we find a rapid diminution.

In Tables 28 and 29 at the end of Volume X., Part I., an "industrial" classification is tabulated, in which persons are credited according to the industry or service in which they are employed, whether their actual occupation is peculiar to that industry or not. The

* Given in great detail in the volume.

SILK.

Age.	Spinning Processes.		Weaving Processes.		Other Processes.		Undefined.		Total.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
12 years	114	177	8	16	9	36	12	20	143	249
13 ,, ...	164	297	24	163	31	78	17	46	236	584
14 ,, ...	219	464	30	427	59	150	38	113	346	1,154
15 ,, ...	207	474	41	493	69	130	37	107	354	1,204
16 ,, ...	162	424	37	534	65	158	30	107	294	1,223
17 ,, ...	130	442	61	489	69	157	24	102	284	1,190
18 ,, ...	133	412	58	488	83	146	27	103	301	1,149
19 ,, ...	124	361	65	448	72	137	24	67	285	1,013
20 ,, ...	126	293	49	406	58	152	32	46	265	897
21-25 years	364	1,056	188	1,282	211	448	86	150	849	2,936
25-35 ,, ...	585	1,471	440	1,743	381	500	186	162	1,592	3,876
35-45 ,, ...	515	913	495	934	314	203	171	105	1,495	2,155
45-55 ,, ...	432	668	558	796	212	118	134	95	1,336	1,677
55-65 ,, ...	209	313	367	430	110	47	77	56	763	846
65-75 ,, ...	85	95	267	222	38	16	34	28	424	361
75 years and over	21	7	75	30	10	0	14	5	120	42
TOTAL	3,590	7,867	2,763	8,901	1,791	2,476	943	1,312	9,087	20,556
Employers	72	2	96	10	29	7	106	1	303	20
,, working at home* ...	2	1	24	3	1	1	1	0	28	5
Working for Employers	3,489	7,827	2,580	8,734	1,748	2,439	821	1,286	8,638	20,286
,, at home*	3	39	245	399	6	49	3	13	257	500
,, on own account	2	3	28	18	4	3	5	0	39	24
,, at home*	1	1	19	15	3	3	2	0	25	19
Others, no statement	27	35	59	139	10	27	11	25	107	226
,, working at home*	2	4	23	69	0	10	0	3	25	86

Females.	Under 20 years.			20 to 45 years.			45 years and over.			Working at home.		
	Unmarried.	Married.	Widowed.	U.	M.	W.	U.	M.	W.	U.	M.	W.
Spinning Processes	3,038	13	0	2,462	1,151	120	418	389	276	23	16	6
Weaving Processes	3,051	6	1	3,180	1,068	117	579	548	351	207	207	72
Other and Undefined	1,654	3	0	1,325	403	38	135	133	97	33	31	15
TOTAL	7,743	22	1	6,967	2,622	275	1,132	1,070	724	263	254	93

* These numbers are included in those stated in the previous lines or columns. Thus, of the 72 employers of the first column, 2 were working at home and the remaining 70 elsewhere.

main classification, used in the preceding pages, is called "occupational." The distinction is made clear by the following extract:—

INDUSTRY: SILK MANUFACTURE.

	Males		Females
Included in Occupation tables	9,087		20,556
Add:			
Engineering & machine-making	407	Paper boxes, &c.	106
Carpenters, bricklayers, &c.	118	Clerks	188
Bleaching, dyeing, &c.	177	Messengers ...	40
Engine men	192	Domestic service	23
Carmen, drivers	29	Others	69
Clerks	516		
Messengers, porters, &c.	160		
Others	139		
Total addition ...	1,738		426
Subtract:			
Occupied with silk in other industries ...	16		5
Total in industry	10,809		20,977

The persons added are employed permanently by silk manufacturers, &c.

The distinction is most important in connection with government service. According to the occupational classification 290,000 persons were employed by Central or Local Governments in England and Wales in 1911; according to the classification by service 838,000 were so employed (pp. 591-3).

We can obtain further information about the numbers employed in the Silk industry from two other official reports.

The Census of Production (Cd. 6,320) (see Chapter II.) shows in each productive industry the number of persons employed by manufacturers in selected weeks in 1907

in the United Kingdom. On p. 359 we have the following details for the Silk industry :—

Average number of persons employed on the last Wednesdays in January, April, July and October, 1907.

	Salaried		Wage Earners		
	Under 18 years	Over 18 years	Under 18 years	Over 18 years	Totals
Males ...	133	1,132	1,990	6,815	10,070
Females ...	56	167	5,557	16,348	22,128
Total ...	189	1,299	7,547	23,163	32,198

There were also 74 outworkers and 147 persons in workshops.

These returns are valuable in that they distinguish salaried persons (managers, clerks, &c.) from wage earners. The Population Census, though it separates commercial clerks, gives no further information as to status than is shown in the table on p. 23. Neither Census gives any classification according to skill.

The returns of the Home Office (Cd. 4,692) for Textile Factories, summarized in the XVIth Abstract of Labour Statistics (Cd. 7,131, pp. 312-3) show for 1907.

SILK.

	Half-Timers		Under 18		18 & above		Totals.	
	M.	F.	M.	F.	M.	F.	M.	F.
Spinning ...	293	414	1,116	2,480	2,791	6,655	4,200	9,549
Weaving ...	16	46	379	2,028	2,864	7,580	3,259	9,654
Other processes	8	19	187	273	1,122	602	1,317	894
Total ...	317	479	1,682	4,781	6,777	14,837	8,776	20,097

Though the Population Census must remain the principal source of information, these other returns, obtained from employers and not from householders, are important as showing that the totals are at any rate roughly the same, and as indicating the differences that may arise when the same things are observed by different machinery and under different definitions. Some of the known

causes of the apparent discrepancies are discussed in the Census of Production Volume pp. 8-11.

The Home Office figures do not include all industries and have only appeared occasionally. For employment of seamen, miners, and on railways annual returns are published in the Abstract of Labour Statistics.

3.—Births, deaths and marriages.

All births, deaths and marriages in the United Kingdom are subject to compulsory registration, and it is believed that very few escape record. The Registrar-General for England and Wales publishes weekly and quarterly reports for the large towns and an Annual Report (Cmd. 608, price 7s.) for the whole of England and Wales. The last named shows the numbers of deaths and births (distinguishing legitimate from illegitimate) and their rates for each Borough and Urban and Rural District and the number of marriages in each Registration District. There has been recently a change from registration to administrative districts in many of the records.

Thus we have such figures as the following :—

LONDON, 1907.			
Estimated population			4,760,000
Registered in the year :	Births.	Deaths.	Marriages..
Numbers	122,745	70,012	40,551
Per 1,000 of the population	25.8	14.7	17.0*

For children dying less than 12 months old a special reckoning is found necessary, as follows :—Number of such deaths in London (14,365) × 1,000 ÷ number of births (122,745) = 117. Great importance is attached to changes in this number, which is called the "infant mortality."

The rates thus obtained are not in accordance with the statistical principles of averages, in which every item in the denominator should bear the same potential relationship to the quantity included in the numerator

* This is the *number of persons* married (81,102 × 1,000) ÷ population.

for not all persons can marry, nor all be concerned with births, nor is the risk of death the same at all ages; other more correct rates are therefore also calculated.

The marriage rate is given as the number of persons married per 1,000 of the unmarried or widowed population over 15 years of age, denominated "marriageable persons." The birth-rate is computed as the number of births per 1,000 women between the ages of 15 and 45 years. The deaths are shown according to age and sex for County Boroughs, Counties, and County aggregates of Urban and of Rural Districts, and the death rates used to be computed (till the war caused so much migration as to make the results nugatory) for each age group in the larger areas. These last are shown in the following table for England and Wales, for London, and for the English Counties which had the highest rates in 1907. In each line the rate is the number of deaths of persons of the ages stated per 1,000 of the estimated population in the district of the same ages.

DEATH-RATES AT VARIOUS AGES, 1907. MALES.
Cd. 4464, pp. 14, 19.

Ages.	England & Wales.	London.	Buckingham-shire.	Lancashire.
0 and under 5 ...	44.8	47.2	27.6	55.9
5 ,, 10 ...	3.3	3.5	3.0	3.8
10 ,, 15 ...	1.9	1.8	1.8	2.2
15 ,, 20 ...	2.9	2.7	2.6	3.3
20 ,, 25 ...	3.8	3.3	4.0	4.2
25 ,, 35 ...	5.6	5.3	4.5	6.1
35 ,, 45 ...	9.5	10.7	7.3	11.3
45 ,, 55 ...	16.9	19.4	10.4	22.1
55 ,, 65 ...	33.7	35.8	26.9	45.9
65 ,, 75 ...	70.5	74.5	56.0	94.1
75 ,, 85 ...	138.3	142.5	105.3	161.3
85 and over ...	316.0	347.8	237.8	329.1
All ages:				
Corrected	16.0	16.8	11.6	19.9
Crude	16.0	16.0	13.1	18.1

The "crude" death-rate is that obtained from the total number of deaths and the whole estimated population; but one district, such as London, may have a

smaller proportion of children or old people than another, and the rate is affected by such inequalities. The crude death-rate of London was equal to that of England and Wales, but in each group except those from 10 to 35 years its rate is higher. The " corrected " death-rate applies the ascertained or estimated rates group by group to the age distribution of England and Wales at the previous Census and thus eliminates the effect of local peculiarities of numbers at various ages.

The rates for the country as a whole are shown in the reports since 1858, and those for the past 15 years are stated in each Statistical Abstract of the United Kingdom. In the reports the marriages are tabulated according to the ages of the contracting parties: the commonest age for men was 24 and for women was 21 years in 1918.

Once in 10 years the Registrar-General issues a report relating to deaths occurring among people in different occupations.* The death-rates and numbers of deaths are shown for over a hundred groups of male occupations, tabulated by ages; it has been found impracticable to make any good estimates for females.

The Abstract of Labour Statistics summarizes reports from three sources on deaths from industrial accidents, viz., General Report on Railway Accidents (*e.g.*, Cd. 7591 for 1913), General Report on Mines and Quarries, Part II. (*e.g.*, Cmd. 3), and the Annual Report of the Chief Inspector of Factories (*e.g.*, Cd. 8051).

4.—Migration.

The statistics of emigration and immigration are obtained from returns from all masters of every ship carrying passengers from or to the United Kingdom. In the case of movement to non-European countries the tables show the countries in which the passengers contracted to land.

* The last published is the *Supplement to the 65th Annual Report of the Registrar-General*, Part II., occupational mortality, Cd. 2619, but a new issue, based on the Census of 1911, is expected.

Thus, for 1909, we have the following information relating to travellers to the United States :

PASSENGERS LEAVING THE UNITED KINGDOM FOR THE UNITED STATES.

	Description of Passengers.						
	English	Welsh	Scottish	Irish	British Colonial	Foreigners	Total
Adults :							
Males	25,516	1,057	10,937	16,169	520	87,482	141,681
Females	16,762	480	7,410	18,314	272	48,319	91,557
Children :							
Males	3,463	127	1,635	1,073	12	7,880	14,190
Females	3,273	109	1,504	1,055	12	6,552	12,505
Total	49,014	1,773	21,486	36,611	816	150,233	259,933

PASSENGERS ARRIVING IN THE UNITED KINGDOM FROM THE UNITED STATES.

	Description of Passengers.						
	English	Welsh	Scottish	Irish	British Colonial	Foreigners	Total
Adults :							
Males	15,735	601	3,892	5,628	1,449	52,394	79,699
Females	9,394	274	2,254	8,517	680	30,421	51,540
Children :							
Males	1,440	54	348	628	55	4,138	6,663
Females	1,371	34	342	573	54	3,726	6,100
Total	27,940	963	6,836	15,346	2,238	90,679	144,002

In 1909 the whole recorded movement was as follows :

	To	From	Excess Outward	Excess Inward
Europe and Mediterranean and Black Sea Ports	951,238	1,045,501	—	94,263
Other countries	474,378	261,325	213,053	—
Total	1,425,616	1,306,826	118,790	—

The most recent return of this sort is H. of C. 295 of 1914 relating to 1913. The figures of the immigration of British subjects to or from non-European countries are summarised in the Statistical Abstract.

The statements of nationality of the emigrants are (or used to be) perfunctory and unverified. Prior to 1908 the traffic to and from Europe was not completely recorded. It is not possible to distinguish generally between genuine emigrants and travellers, and persons do not necessarily stay in the country in which they land. Consequently, the statistics are only indicative of rough totals and cannot be used for fine calculations. But tables are given of "persons, previously resident in the United Kingdom who left to take up permanent residence" outside Europe, and these show the general stream of emigration.

The net emigration (118,790 in 1909) can be used for estimating the population present in the United Kingdom at dates between the Censuses, if records can be obtained of the movement of soldiers, and if it is safe to assume that the same numbers of sailors and fishermen are afloat or abroad one year with another.

Thus, in the *Economic Journal* of March, 1911, p. 149, a forecast of the total in the Census of the following month was made as follows :—

Population of United Kingdom, 1901	41,458,721
Excess of births over deaths, 1901-1911	4,847,651
Excess of emigration over immigration, 1901-1911 ...	1,254,000
Estimated population in 1911=population in 1901 +excess of births—excess of emigrants	45,052,000

The population as enumerated proved to be 45,221,615.

There are no records of movement within the United Kingdom, but the Population Census, Volume IX., shows the birthplaces of all persons in each County, County Borough, and Urban District whose population is over 50,000, so that some idea can be obtained of internal migration. For example, Glamorganshire has grown rapidly in population, while Herefordshire was nearly

stationary. The details are to be found in pp. 24-26 and 105-110 of the Volume.

	Glamorganshire		Herefordshire	
	Male	Female	Male	Female
Population in 1901	433,762	416,169	55,196	58,929
Population in 1911				
Total	582,180	538,730	55,168	59,101
Born in				
Glamorganshire	362,196	367,773	506	676
Rest of Wales	61,524	49,384	2,455	3,037
Herefordshire	5,229	3,992	36,817	37,683
Gloucestershire	19,997	15,458	2,330	2,659
Somersetshire	18,137	12,956	350	419
Rest of England	86,996	72,245	11,493	12,979
Scotland and Ireland ...	11,660	6,113	386	565
Abroad or at Sea	10,962	4,583	292	396
Not stated	5,479	6,226	539	687

Of course, persons may have resided in many places between the date of their birth and that of a "Census," and may only be visitors at the time of the Census.

Thus out of 582,180 males who were in Glamorganshire in 1911, 362,196 (62 per cent.) were born in the county, while 7 per cent. were born in Gloucestershire or Somersetshire; of the females, 68 per cent. were born in Glamorganshire and 5 per cent. in Gloucestershire or Somersetshire; in the county there were more males than females. In Herefordshire where the females are in excess of the males, 65 per cent. of the males and 64 per cent. of the females were born in the county.

For the country as a whole these figures may be summarized from three Census Volumes (England and Wales, Vol. IX., Cd. 7017, pp. 3-5; Scotland, Vol. II., Cd. 6896, pp. 502-6; Ireland, General Report, Cd. 6663, p. 144).

	Persons enumerated in 1911 in		
Born in	England or Wales	Scotland	Ireland
England or Wales ...	34,464,059	165,102	90,237
Scotland	321,825	4,362,473	38,486
Ireland	375,325	174,715	4,233,182
Isle of Man or Channel Islands	36,762	1,105	9,266
Rest of British Empire ...	161,502	17,890	

Born in	Persons enumerated in 1911 in England or Wales.	Scotland.	Ireland.
Foreign Countries			
British subjects ...	66,687	9,072	
Naturalized	21,999	1,798	18,905
Foreigners	284,830	24,739	
At sea	6,805	628	143
Not stated	330,698	3,382	—
Total ...	36,070,492	4,760,904	4,390,219

CHAPTER II.—INDUSTRY, TRADE AND PRICES.

1.—PRODUCTION.

It would be interesting and important to obtain a measurement of the results of the productive activity of the nation from year to year; but this is impossible, for there is no common unit by which the result of the efforts of miners, shipbuilders, railwaymen and others can be measured except the unit of value of the goods produced, and the statement of the total value involves the changing factor of price as well as that of quantity.

The only available statistics issued annually relate to the extractive industries (mining, quarrying, agriculture, and fishing), and to shipbuilding, iron and steel production, and the manufacture of beer and spirits. For other industries we have to depend on knowledge of the quantity of raw material used, that is on consumption. (See next section.)

These statistics are summarized in the Abstract of Labour Statistics (*Section* Production), and also in most cases in the Statistical Abstract of the United Kingdom.

The origin of the statistics of agriculture and fisheries is to be found in the Annual Reports of the Boards of Agriculture for England and Wales (Cmd. 695, price 3d.) and for Scotland (Cmd. 593, price 2d.) and of the Department of Agriculture and Technical Instruction for Ireland (Cmd. 838, 3d.). (The first named contains summaries for the United Kingdom.)

These show the acreage under each crop and its produce County by County. For the production of meat and of milk, butter and cheese we have to proceed indirectly by

estimates, based on the size of the herds and number of milch cows.

The Home Office is responsible for the statistics of mineral production and pig-iron (*e.g.*, General Annual Report and Statistics for 1913, Part III.—Output, Cd. 7741) ; but in recent months the current output of coal has been stated in the *Labour Gazette* from returns made to the Board of Trade. The statistics of the weight of steel ingots and puddled iron bars produced are obtained from the British Iron Trade Association, and a memorandum on the whole subject is (or used to be) issued annually by the Board of Trade (*e.g.*, H. of C. 284 of 1913).

None of these statistics calls for special illustration.

The Census of Production of 1907 (Cd. 6320, price 7s. 6d.) was an exhaustive enquiry into the value, and, so far as possible, the quantity, of goods produced in all the productive industries of the United Kingdom, and at the same date a comparable statement for agriculture. It was intended to repeat the Census in 1914, but no results were published ; it is to be hoped that it will be taken periodically.

In the preliminary pages of the report a very interesting and difficult estimate is worked out, which shows the relation of the value of material products to the whole income of persons in the United Kingdom. It leads to the following table which is constructed from the rather unintelligible paragraphs of the Report.

VALUE OF PRODUCTION AND SERVICES IN THE UNITED KINGDOM, 1907.

Product of industry, mining and agriculture	£940 Mn
Carriage, merchanting and retailing home and imported goods	570
Custom and excise duties*	75
Services, professional incomes, &c.	230
Income from ownership of houses, &c.	150
Income from abroad	235
Total	£2200
Less depreciation of buildings, plant, &c.	190
Total income in 1907 ...	£2010 Mn

* Duties are properly included in the value to the consumer.

The nature of the information for each industry can be illustrated from Silk (see p. 24).

SILK INDUSTRY, 1907.

	Quantity.	Gross value.
Produce :		
Yarn	2,711,000 lbs.	£1,330,000
Broadstuffs	18,035,000 yds.	1,565,000
Other products	Not recorded .	2,268,000
		£5,163,000
Outgoings :		
Materials, fuel, light, &c.		3,401,000
Net output ...		£1,762,000

The net output provides the fund out of which depreciation, wages, salaries, rent, interest and profits are paid.

Net output per person employed £55 per annum.

Average annual earnings of wage-paid employees, £34 10s. approx. (P. 12 of Report.)

Horse power of engines 18,867, together with some dynamos and some power rented or purchased.

2.—Consumption.

While the statistics of production are limited by difficulties of measurement, those of consumption are lacking rather because there is no adequate machinery for collecting them. During the war temporary machinery was provided in many cases but the results have not generally been published, nor have (so far as is known) normal official statistics been improved in this respect.

Home consumption of imported goods is estimated by subtracting from imports in a year the quantities re-exported in that year. The computation is made in the Statistical Abstract of the United Kingdom (*e.g.*, Abstract for 1916, Table 41) and the results shown per capita of the population. Of home-produced foods the only estimates are for agricultural produce and meat (Cf. the references in the preceding section, and the

XVIth Abstract of Labour Statistics pp. 60-2), and for dutiable goods, viz., beer, spirits, etc.

We may thus find that for the year 1912 the following budget was provided per capita :—

	Home.	Imported.		
Butter ...	Not known	9.5 lb.	Sugar, &c.	90 lb.
Margarine ...	,,	3.3 ,,	Tea	6.5 ,,
Cheese ...	,,	5.5 ,,	Coffee	.6 ,,
Eggs ...	,,	50 (number)	Cocoa	1.7 ,,
Wheat ...	69 lb.	301 lb.	Currants & Raisins	4.7 ,,
Rice ...	—	15 ,,	Wine	2 pints
Meat (including bacon)	78 ,,	52 ,,	Spirits	5.4 ,,
			Beer (Home)	27 gals.
			Tobacco	2 lb.

These should be multiplied by $4\frac{1}{2}$ to give the annual consumption for an average household.

Dutiable goods are not exactly estimated for consumption, since these figures are affected by the varying quantities held in bond. Sugar includes sugar for manufacture and for animal foods. A rough estimate could also be made for fish (about 35lb. per head) and potatoes (including use for animals). Incomplete as this statement is, the figures would be sufficient, if adequate estimates of dairy produce and margarine were obtained, to indicate the change, and possibly the improvement, of the diet of the country. Some further information is given in Chapter III. below.

For the raw materials of manufacture we have the information already named for coal and minerals and steel, which can be corrected by the records of imports and exports, and to some extent household coal can be separated from other. For cotton and jute the Foreign Trade Statistics are adequate, and for wool they are supplemented in the Abstract of Labour Statistics by estimates of the home-clip. For flax, hemp, timber and leather we have only statistics of imports. In 1912 there were used approximately 175,000,000 tons of coal, 7,710,000 tons of pig-iron, 18,700,000 cwt. of cotton, nearly 6,000,000 cwt. of wool, 4,900,000 cwt. of jute,

1,700,000 cwt. of imported flax, and 470,000 cwt. of imported tow of flax and hemp, 9,000,000 lb. of silk, and 1,374,000 cwt. of rubber. More accurate estimates could be made by close study of the statistics, supplemented from unofficial sources and the list could be slightly extended.

3.—Foreign trade.

Accounts of imports and exports are published about the eighth day of each month, containing statements in considerable detail of the trade of the previous month, together with the totals of the year so far as it has elapsed and comparative figures for the two previous years. These are subject to corrections, generally of no great importance, and the complete Annual Statements are issued in the summer of each year for the trade of the previous five years (*e.g.*, Cmd. 945 for 1915 to 1919. Price 10s.). In the Statistical Abstract of the United Kingdom over 200 pages are devoted to accounts of trade. The totals are given for imports and exports of home-produced and foreign goods for each country and each commodity included in the Annual Statements, and details of sources are given for some principal foods and raw materials, tables are included for Bullion and Specie, and average prices are worked out ; comparative figures are also given for 15 years. But it is necessary to turn to the larger Annual Statements to ascertain the trade in a particular commodity with separate countries, and to learn the exact definitions of foreign trade, the methods of valuation, the treatment of the accounts of goods in bonded warehouses and many other details.

The following table brings together in a summary form the principal statements to be found in one volume or the other relating to the cotton trade, in order to show the nature of the information and where it is to be found. The year 1907 is selected in order to afford a comparison with the Census of Production. It is evident that further study and more detail are needed before the

relative importance of manufacture for the home and foreign markets can be judged.

SUMMARY OF STATISTICS OF COTTON, 1907.

	Quantity 000,000s	Value £000s	Average Price d.	Tables in Abstract
IMPORTS AND EXPORTS.				
RAW COTTON:				
Imports	2,387 lb.	£70,458	7.08	40, 41, 60
Re-exports	330 ,,	9,539	6.94	51, 52
Excess of Imports ...	2,057 ,,	£60,919	7.11	45
MANUFACTURES:				
Imports—				
Waste from worked cotton	25 ,,	£345	3.27	40, 41
Yarn	11 ,,	431	9.80	40, 41, 60
Piece goods	75 yds.	1,810	5.83	40, 41, 60
Others	—	7,284	—	41
Total		£9,870		
Re-exports—				
Waste	40 lb.	£582	3.46	51, 52
Piece goods	10 yds.	232	5.62	,,
Others	—	2,249	—	52
Total		£3,063		
Exports—				
Waste	71 lb.*	£860*	2.94	48, 49
Yarn	241 ,,	15,417	15.3	48, 49, 61
Piece goods	6,298 yds.	81,049	3.09	48, 49, 61
Others	—	13,111	—	49
Total		£110,437		
Excess of Exports ...		£103,630		
PRODUCTION				Census of Production
Waste, sold	430 lb.	£3,749	2.09	p. 337
Yarn	1,487 ,,	78,304	12.6	,,
Piece goods	7,020 yds.	81,313	2.78	,,
Others	—	10,602	—	,,
Total		£173,968		
Cost of materials, fuel, &c.		128,697		p. 339
Duplicated		264		,,
Value of net output ...		£45,007		,,
Number of persons employed		572,000		
Net output per head		£79		

* Exported waste was not shown separately in 1907; the numbers here given are for 1908, assumed to be the same in 1907 in order to complete the table.

Sources of raw material. (Abstract; Table 45)	000,000 lb.	Destination of Exported Piece Goods, 1907 (General Report on Trade, Vol I., Table 14)	000,000 yds.
U.S.A.	1,756	India and Burmah ...	2,454
Egypt	423	China	473
India	106	Turkey	404
Brazil	50	Egypt	265
Peru	19	Java, &c.	208
British W. & E. Africa...	6	Australia...	148
Other countries	27	Argentina	159
		Brazil	132
		Chile	107
		Japan	121
		Belgium	103
		Others	1,724
Total	2,387	Total	6,298

In recent years the Board of Trade has issued a report (*e.g.* Cd. 7,432) showing how far the movements in the aggregate values of exports and imports from year to year are due to price changes and how far to quantities of goods; and in 1920 estimates are given of the dead weight of imports and exports as a whole at various dates (Board of Trade Journal, February 5, 1920). It is evident that in periods of rapid movements of price the statistics of value only give a one-sided view. Thus the whole value of exports was £525 Mn in 1913 and £798 Mn in 1919; but at 1913 prices the goods exported in 1919 would have been worth only £288 Mn, and the dead-weight fell from 91 Mn tons in 1913 to 46 Mn tons in 1919.

4. Transport.

Prior to 1920 the official Annual *Railway* Returns of the United Kingdom (*e.g.* Cd. 8,038) were very incomplete, except on the financial sides. The only tables relating to work done by railways were: length of line open, number of passengers* conveyed, weight of goods conveyed (distinguishing coal, other minerals and general merchandise), number of miles run by passengers and by goods trains, and the number of locomotives, carriages and wagons. The receipts from

* Season ticket holders are not included; only the number of holders is stated.

the various sources are stated, and averaged per train-mile and per mile of line open. These statistics are given for each company separately.

It has been realised for many years that more detailed figures were necessary for the intelligent study of railway operation whether by the public or by the companies themselves, and such details were in fact published in other countries and collected by some companies here. In particular the statement of the number of tons conveyed gave equal importance to a haul from Liverpool to Manchester and one from Carlisle to London, and the total miles run by trains counted a train with ten wagons as equivalent to one with eighty. From the beginning of 1920 very detailed tables of goods transport are issued every four weeks (Ministry of Transport, Railway Statistics, price 1s. 6d.). The following table compiled from the return indicates the nature of the information.

STATISTICS OF OPERATION, GOODS AND MINERALS, GREAT BRITAIN.

FOUR WEEKS ENDED 20TH JUNE, 1920.

	Tons carried. 000s.	Ton-miles.* 000s.	Average distance hauled. Miles.	Receipts per ton-mile. d.
General merchandise ...	5,383	490,877	91.2	2.98
Coal, etc.	14,531	706,069	48.6	.93
Other minerals ...	5,653	291,027	51.5	1.12

FREIGHT TRAIN LOADS.

	Average load. Tons.	Ton-miles per engine hour.	Train miles. Per train-hour.	Train miles. per engine-hour.†
Freight trains ...	133	438	8.1	3.30
Coaching trains ...	—	—	12.9	10.1

WAGONS AND WAGON-MILES (*i.e.*, AGGREGATE OF MILES RUN BY WAGONS).

	Total miles 000s.	Average load. Tons.	Miles per wagon per week.	Wagons per train.	Wagon-miles per engine-hour.
Loaded ...	275,536	5.4	51.3	24.6	115.3
Empty ...	115,934	—	21.6	10.3	

* The total of ton-miles is the total of the numbers of tons in each consignment multiplied by the number of miles it is carried.

† Train-hours are the hours of running; engine hours include shunting, etc.

The study of these figures month by month shows on the one hand the general condition of industry, and on the other whether the economy or efficiency of operation is improving. The statistics are given for each company, and distinguish 72 kinds of merchandise.

It is an instructive exercise to find the relation between the various totals and averages given. Thus, in the above extract wagons per train ($24.6+10.3=34.9$) multiplied by train miles per engine hour (3.30) gives wagon-miles per engine hour (115), a number which can also be obtained by dividing wagon miles, loaded or empty (391,470,000), by engine hours (3,394,000, p. 12 of Report). This average is sometimes held to afford the best measure of efficiency in operation.

Figures are also published monthly relating to passenger traffic.

Statistics of *Shipping* are issued in the monthly trade returns, in an *Annual Statement of Navigation and Shipping* (*e.g.*, Cmd. 953 for 1918, price 3s. 6d.), and are given in considerable detail each year in the Statistical Abstract of the United Kingdom. The dead weight of goods carried is now estimated, and the result published in the *Board of Trade Journal*, but there is nothing equivalent to the ton-miles of the railways, and the ascertainment of distances which ships travel or goods are carried would need a very troublesome investigation. The figures, in fact, relate to the net tonnage of the ships which reach or leave these coasts with cargoes or in ballast, and not directly to the quantity or weight of goods carried. The definition of net tonnage is highly technical, but it affords a measure of the carrying capacity of the ship.

In 1911 the total tonnage of ships leaving the United Kingdom with cargoes for abroad was 59,263,000 (of which 1,520,000 tons were of sailing ships, and 57,743,000 of steamships). In the same year the tonnage of ships arriving with cargoes from abroad was 41,946,000. The value of goods exported was £556,878,000, or £9.4

per ton of shipping; of goods imported £680,157,000, or £16.2 per ton. The difference between the aggregate tonnage of incoming and outgoing ships and in the average values of the cargoes is mainly attributable to the coal export trade. The tonnage of ships entering in ballast was 27,218,000, whilst that of ships clearing in ballast was only 10,482,000.

"Entering" and "clearing" correspond to the official processes connected with a ship's reaching or leaving a port. A ship from abroad is counted as "entered" at the first port at which she discharges cargo, and a ship for abroad is counted as "cleared" at the last port at which she embarks cargo. It is necessary in using the statistics to study the method of recording ships only discharging or embarking mails and of ships calling, for example, at Antwerp on the way from Middlesbrough to London before sailing for the East; for the method has been modified in recent years. In the statistics of the separate ports are given not only the entrances and clearings, but also the "arrivals" and "departures," which terms include all ships in and out of the port wherever they were first entered or finally cleared. Thus we have the following statements for London and Liverpool in 1911 :—

TONNAGE OF SAILING AND STEAMSHIPS (WITH CARGOES OR IN BALLAST).

	London.	Liverpool.
Entered from abroad	11,973,000	7,878,000
Cleared for abroad	9,005,000	6,880,000
Arrived from abroad	13,163,000	11,389,000
Arrived in the coasting trade ...	6,500,000	3,224,000
Total arrived	19,663,000	14,613,000
Departed for abroad	11,172,000	10,445,000
Departed in the coasting trade ...	8,344,000	4,118,000
Total departed	19,516,000	14,563,000

Ships are also distinguished according to their nationality and in the monthly and annual reports tables are given

showing the nationality of ships entered from or cleared for each country.

Tables in the Statistical Abstract and in the Annual Report show the tonnage of ships built for shipowners of this country, for the Royal Navy, and built for or sold to foreign owners ; of the tonnage in each year belonging to the United Kingdom, and finally of the numbers of persons employed (" the sum of the number of persons forming the first crew of each vessel employed during the year ").

5.—Wholesale prices.

The Board of Trade records the wholesale prices of 47 selected commodities about half of them food and the other half raw materials of industry, and combine them into a general index-number. The details of method and of the data and the annual averages are shown in the Abstract of Labour Statistics, *Section* Prices. Till recently monthly statistics have not been issued and the earliest publication has been the *Labour Gazette* of January for the previous year and even there only averages have been given. Since the initiation of the *Monthly Bulletin of the Supreme Economic Council** the movement of averages of groups of prices has been ascertainable monthly, but in fact the index-numbers† computed by the *Economist* and the *Statist* are those generally quoted. From the Board of Trade account, we learn that wholesale prices of food (cereal, animal and tropical) and of raw materials fell very considerably from 1873 to 1888 and again from 1891 to 1896, and that from 1896 to the beginning of the war a considerable rise took place which brought the level back to that of 1884. The movement during the war is difficult to measure, because the great number of market prices were controlled, and it is still at the end of 1920 very difficult to define and measure the average change.

* Price, 1s., obtainable through the ordinary sources.

† Index numbers of prices are the result of averaging the changes of prices of a number of commodities.

It is perhaps more interesting and more important, when one is not considering currency or monetary problems, to study the movement of prices, of particular commodities, *e.g.*, of coal, wheat, sugar, tea, rubber, together with the records of importation and consumption. A considerable part of the economic history of the past 50 years is bound up with these movements. For this purpose a file of Statistical Abstracts is necessary, one for every fifteen years. The following short table indicates the material available :—

	Wholesale Price.				Quantities.		Population of United Kingdom.
	British Gazette Average.		Imported.		United Kingdom Harvest.	Imported.	
	Per quarter.				Quarters.		
	s.	d.	s.	d.			
1871 ...	56	8	50	9	11,000,000*	10,351.000	31,485,000
1881 ...	45	4	47	4	9,000,000*	16,647,000	34,885,000
1891 ...	37	0	38	1	9,343,000	20,893,000	37,733,000
1901 ...	26	9	28	4	6,741,000	23,587,000	41,459,000
1911 ...	31	8	34	0	8,039,000	26,144,000	45,222,000

It is not safe to deduce the average movement of retail prices from that of wholesale prices, since the cost of manufacturing and distribution must also be taken into account ; but it is true that retail prices rise and fall with a fairly close, though not easily measured, relationship to wholesale prices.

In addition to the wholesale prices included in the index-number, details are given in the Abstract of Labour Statistics of the prices of coal, pig-iron and manufactured iron.

We have another valuable record of prices in the tables of the Statistical Abstract (Nos. 60 & 61) which contain the prices of all those goods exported or imported which are sufficiently definite to allow a price to be calculated from the declared value and quantity of the goods. Such prices for cotton goods are used on p. 36.

* Rough unofficial estimate.

By these records we can ascertain, over short periods at any rate, the general changes in wholesale price of some *manufactured* goods, while the numbers already dealt with are of food and raw materials. These records, however, conceal any changes in quality; *e.g.*, the average price of exported blankets (7.01s in 1899, 9.91s. in 1913 per pair) may not be for the same relative amounts of different qualities in both years.

CHAPTER III.—INCOME AND WAGES.

1.—Income and capital.

Official statistics relating to income are limited to incomes that are assessed for taxation or are reviewed and exempted. The Inland Revenue Commissioners publish an Annual Report (*e.g.*, Cd. 8116 for the year 1914-15*). Some of the statistics were discussed and analyzed by the Committee on the Income Tax (H. of C. 365 of 1906), and the whole subject was examined in detail by Royal Commission on Income Tax of 1919; the most important statistics are to be found in the *1st and 2nd Instalments of the Minutes of Evidence* (Cmd. 288—1 App. 3, Cmd. 288—2 App. 11†, price 2s. each).

The Annual Reports deal with the tax from the point of view of administration and collection and not with the intention primarily of giving information of the kind wanted by economic students, and there are few bodies of statistics so difficult to use or so liable to suggest erroneous inferences; for any serious study it is necessary to refer to *British Incomes and Property*, by Sir Josiah Stamp, where all the figures are elucidated.

* During the war the Reports were cut down, with the result that many of the interesting tables were omitted.

† Also issued Cmd. 224, price 1d.

The most important distinction is between gross income, taxable income, after certain exemptions and allowances have been made, and income on which tax was received. Thus we have the following totals for 1913-14 :

INCOME-TAX INCOME IN 1913-14. (000s omitted.)

Gross Income brought under review			£1,167,184
Exemptions :			
Whole income under £160 ...	£61,606		
Income of charities, &c.	14,859		
Income of persons not resident in the United Kingdom	1,732		
Total exemptions		£78,197	
Allowances :			
Repairs, lands and houses ...	£43,360		
Empty property	6,141		
Wear and tear of machinery or plant	34,870		
Other allowances, reductions and discharges	53,576		
Total allowances from Gross Income		£137,947	£216,144
Taxable Income			951,040
Allowances from Taxable Income :			
Abatements	£139,772		
Life Insurance Premium	13,304		
Children	6,249		
Total Allowances from Taxable Income			159,325
Income on which tax was paid			£791,715

Thus £1,167,184,000 was brought under review, and the tax was finally paid on £791,715,000. Of the totals here given that of Taxable Income approaches most nearly to the true total income of persons above the exemption limit.

The report is mainly concerned with the income under the five schedules, whose definition is highly technical, but (in the manner of Government Departments) does not,

in the end, show the taxable income schedule by schedule. It may, however, be deduced and is as follows :—

		Taxable Income, 1913-14. 000's
Schedule A.	Ownership of Lands, Houses, etc. ...	£175,662
Schedule B.	Occupation of Lands	5,373
Schedule C.	Government Securities	47,776
Schedule D.	Business, Professions, employments	584,345
Schedule E.	Salaries of Government and Public Company Officials	137,884
		£951,040

Income from farming under Schedule B was, in 1914-15, assumed to be one-third of the rent, so that farmers whose rent was less than £480 had no taxable income. In 1920-21 such income is assumed to be twice the rent, unless the farmer elects to be assessed under Schedule D.

It is very important to realise that a very considerable part of the assessments under Schedule D are based on the average of three (in some cases five) previous years, so that it takes several years before profits in a particular year are shown in the accounts. The detailed figures stated to the Royal Commission on Income Tax for 1918-19 thus include the profits of 1915, 1916 and 1917, and include hardly any post-war profits.

The reports do not show the number of tax-payers, but only the number of assessments under Schedule D and E, and in very many cases the same individual is assessed more than once. An estimate is made of the number of tax-payers in App. 11 of the 2nd Instalment of Evidence, but since (as explained) it does not refer to any one year and is in a period when incomes were passing the exemption limit in great numbers, it is valueless in relation to the question " how many persons received more than £160 in 1918 ? " or in any other year.

The only definite information about persons is the number who were allowed abatement on small incomes and the number who paid super-tax. Nevertheless, the total number of tax-payers has been estimated with some precision from time to time by officials and others who have made a special study of the reports. For

1914-15 the number estimated in the House of Commons was 1,240,000.

There is no official estimate of the amount of capital in existence, but the values of estates subject to Death Duties are given in detail in the same Report of the Inland Revenue Commissioners, and these, together with the Income Tax statistics, have afforded the means of calculation of the kinds and aggregates of capital from time to time.

2.—Wages, earnings and hours.

There are many publications dealing with wages, but they are so imperfectly summarised, especially during and since the war, as to make it very difficult to follow either the wages in a particular occupation or the general movement of the average of wages or earnings.

An elaborate inquiry (commonly called the Wage Census) was made by the Labour Department of the Board of Trade in 1906, of which the results, after an extraordinary delay, were issued in a series of eight volumes between 1909 and 1913 under the general heading, Earnings and Hours Inquiry in the United Kingdom (Cd. 4,545, Textiles; 4,844, Clothing; 5,086, Building, etc.; 5,196, Public Utility Services; 5,460, Agriculture; 5,814, Engineering, etc.; 6,053, Railways; 6,556, Paper, Pottery, Food, Miscellaneous). There was no report on mining, and no general summary and report have been issued. The Labour Department has also published from time to time rather curtailed accounts of standard time and piece-rates (*e.g.*, Cd. 6,054, Standard Time Rates and Hours, 1912, price 6d.) and before the war issued an annual statement of changes of wages and hours (*e.g.*, Cd. 7,080 for the year 1912). The principal changes are given in the *Labour Gazette* monthly, which are summarised annually in the January number. The Abstract of Labour Statistics contains abbreviated statements from all these sources, and works the results into an index-number, purporting to show the general course of wages in the United Kingdom since 1879. There is strong reason for holding that the aggregated statements of wage

changes reported to the Labour Department cannot be applied without amplification to the measurement of the change from year to year of the total wages paid in the country, while the wage index-number ignores some important factors and rests on much too narrow a basis. As is the case with so many groups of official statistics, the important lessons to be derived from the mass of material have been drawn by unofficial investigators.

The nature of the information can be indicated in part by working through the records of one occupation. We will take Printers' Compositors by hand on time-rates in London. In the Wage Census (Cd. 6,556, p. 31) we find 1,500 (book, jobbing or weekly news) men working full time, whose average earnings were 39s. 11d., only one quarter of whom earned more than 40s., and one quarter less than 39s.; 689 also worked more or less than normal hours and averaged 42s. 7d. The Trade Union Minimum was 39s. from 1901 to 1915 (raised from 38s. in 1901, see Report on Changes in Wages for 1901). There is no record of change till October, 1915, then, according to the records in the *Labour Gazette*, the rate rose to 41s., and subsequently to 42s. (April, 1916), 45s. (October, 1916), 49s. (June, 1917), 53s. (November, 1917), 55s. (January, 1918), 62s. 6d. (April, 1918), 72s. 6d. (September, 1918), 77s. 6d. (June, 1919), 85s. (December, 1919), 95s. (June, 1920). In 1907 the weekly hours of work are given in the Labour Abstract as 52½, in 1913 as 50, with the note that 52½ or more are worked in many offices; in 1920 they were 48.

As an example of a more complicated history we may take women cotton weavers. In the Wage Census in 1906 (Cd. 4545, p. 28) of those managing 4 looms, one quarter earned 21s. 6d. or less, half 23s. 6d. or less, one quarter 25s. 6d. or more, and the average for all working full time was 23s. 5d. Wages are governed by piece-rates which move from time to time as a percentage on an agreed standard. From 1906 to 1912 exactly the standard was paid; taking this as 100 the rate moved to 105 in 1912, to 110 in January, 1916, to 115 in January,

1917, to 125 in July, 1917, to 140 in December, 1917, to 165 in June, 1918, to 215 in December, 1918, and to 245 in July, 1919, the last rise being to compensate for the reduction of weekly hours from 55½ to 48. In May, 1920, the rate rose to 315.

There is no information to show whether earnings move in proportion to the piece-rate and it ought not to be assumed that there was no change in skill, industry or machinery in these 16 years.

Every month the *Labour Gazette* publishes a table showing the numbers employed and the wages paid by a number of firms in the textile, clothing and some other trades. The earnings, of course, depend on regularity of employment as well as on rates of payment, but when they are carefully considered in the light of other information they are useful for many purposes. Thus (*Labour Gazette*, November, 1920, pp. 608 and 611) we learn that certain cotton firms employ 37,507 persons (men, women, boys and girls) in the weaving department who earned £79,347; the numbers being 8.6 and the aggregate earnings 28.4 per cent. less than a month before. In the context we read that the depression in the cotton trade increased during October, and that much unemployment and under-employment were reported in all the principal districts.

There are important summaries of the changes in *rates of wages* and of hours during the war in the *Labour Gazette* of April, 1920 (p. 170), and August, 1919 (p. 319 and p. 345). There is practically no general information as to the movement of *earnings* since 1914, which has probably been markedly different from that in rates.

3.—Working-class budgets.

In order to gain knowledge of the standard of living attained by the working-classes, and to obtain a basis by which the effect of changes of retail prices can be judged, two collections (in 1904 and in 1918) have been made of accounts of the weekly expenditure of working-

class households on food. Such returns are necessarily voluntary and can only be obtained from families of regular habits and thrifty nature, and therefore do not give a perfect average for the working-class as a whole; they also in general are supplied by families in which there are a working husband, a wife, children, and no other adult. It is extremely difficult to get such records at all since few people will be at the trouble to keep accounts, and the budgets generally refer to only one week's expenditure, and they are not sufficiently numerous to allow much sub-division either by locality, income, occupation, or size of family.

The results of the 1904 investigation were originally published in *Memoranda on British and Foreign Trade and Industry*, Cd. 2337; the average of the results are quoted in many official publications (*e.g.*, Cd. 6955, see p. 50). This average is the basis of the well-known index number of retail food prices; though its origin is so remote as 1904 there is good reason to hold that the relative expenditure on different foods changed little till 1914, and up to that date the basis was sufficient for estimating the effect of price changes.

The Committee on the increase of the cost of living to the working-classes (Report Cd. 8980, price 3d.) made a collection of budgets on similar lines in the last year of the war. They ascertained that the working-class dietary was definitely modified during the war, and estimated the change in nutritive value, which was found to be very small. The consumption of the more important foods was estimated as follows (p. 18 of the Report):—

WEEKLY BUDGET OF A STANDARD FAMILY.
(Principal foods only.)

	1914	1918
Bread and flour	33.5 lb.	34.5 lb.
Rice, tapioca, oatmeal	2.7 ,,	2.7 ,,
Meat and bacon	8.0 ,,	7.0 ,,
Lard, suet, butter, margarine ...	3.1 ,,	2.5 ,,
Fresh milk	9.2 pints	11.7 pints
Cheese	.84 lb.	.41 lb.
Sugar	5.9 ,,	2.8 ,,
Eggs	13 no.	9 no.
Tea	.68 lb.	.57 lb.

If this table is compared with that on p. 34 it will be found that before the war a considerable amount of meat is not accounted for; part of the difference is due to excessive consumption and waste in some households, and part because sausages, tinned meat, offals, &c., are not included in the table just given. The sugar in the former table includes that very large part which is used in the manufacture of confectionery and jam. Wheat and tea agree as closely as is to be expected.

Other expenditure is generally classified under rent, clothing, fuel and light, and miscellaneous. Information about rent is readily obtained from Cd. 6955 (see p. 51 opposite). Estimates have been made from various sources as to expenditure on gas and coal. Expenditure on clothing is not known even approximately, nor that on miscellaneous expenses.

The Cost of Living Committee, using such information as was available, gave the following estimate of average expenditure of a standard family in 1914 and 1918. (p. 7 of Report.)

GENERAL AVERAGE OF WEEKLY EXPENDITURE OF FAMILIES WHO MADE RETURNS OF FOOD CONSUMPTION.

	1914		1918	
	s.	d.	s.	d.
Food	24	11	47	3
Sundries	1	2	2	6
Fuel and light ...	2	4	4	2
Rent	6	7	6	9
Fares		10	1	0
Insurance	3	0	3	0
Clothing	5	6	10	9
	44	4	75	5

Further information on this very difficult subject, showing the position after the war, is greatly to be desired.

Some records of budgets of agricultural labourers are to be found in the Report on Cost of Living of Rural Workers, &c. (Cmd. 76, price 9d.).

4.—Prices and cost of living.

The one important source of information about retail prices before the war is the *Report of an Inquiry . . . into working-class rents and retail prices . . .* in 1912 (Cd. 6955, price 4s. 11d.). In this accounts are given of the prices of the principal foods and coal and of rent in London and each of 87 large towns in the United Kingdom. The cost of rent and of coal varies greatly from place to place, as might be expected, but there are also some remarkable differences in the prices of food, *e.g.*, the four-pound loaf cost 5d. in Manchester, 6d. in Liverpool, and 6d. to 7d. in Newcastle, and milk was 2½d. the quart at Waterford, 3d. to 4d. at Dublin, 3½d. at Leeds, and 4d. at Middlesbrough. The cost of living so far as food, coal and rent are concerned varied in the ratio 100 : 81 between London (the highest) and Macclesfield (the lowest). Food as a whole did not, however, show much variation, the extreme range being in the ratio 111 (Perth and Galashiels) to 94 (Stoke-on-Trent), while most towns were within 5 per cent. of each other. Many of the local differences were no doubt smoothed out by the process of control during the war, but there is no published official information to show the position now. The report also shows the change in prices in all the towns included between 1905 and 1912.

The systematic official study of retail prices is relatively modern. In the Report on British and Foreign Trade Conditions (Cd. 2337 of 1904, p. 75) there is a very imperfect account of prices in London from 1877 to 1903. This was amplified in the 1912 report, the more complete figures beginning in 1892 (p. 302). In the same report for the first time retail price movements for the average of 77 provincial towns are shown for the years 1907 to 1912 (pp. 303-6) as well as the more detailed accounts for 1905 and 1912. These showed that the changes in the provinces were very nearly the same as in London, so that we have a fairly adequate record from 1892. The price of the standard budget of food described in

the previous section was 10 per cent. higher in 1913 than in 1892. From the commencement of the war (see *Labour Gazette*, January, 1915, p. 6) systematic enquiries were made throughout the United Kingdom as to retail prices of food on the first day of each month, and these form the basis of the now well-known retail food index-number. The method of collection and compilation is described in the *Labour Gazette*, March, 1920, p. 118. The average prices of the foods in the standard budget and the resulting index-numbers are published every month. The unsatisfactory nature of this index-number lies not in the collection of the prices or the system of averaging, but in its inapplicability to post-war housekeeping. The number simply shows how much the cost of the standard budget would have increased since 1914 if exactly the same kinds and qualities of food could be and were bought in 1921 as in 1914 (or with very slight modifications in 1904, the date of the original budgets); no allowance is made for enforced or voluntary change of diet. Many commodities ordinarily purchased, from grocers or greengrocers especially, are not brought into account, for the budget includes only butchers' meat (not pork), bacon, fish, bread, flour (not self-raising), tea, sugar, new milk, butter, margarine, cheese, eggs and potatoes.

It is evidently extremely difficult to obtain or to interpret prices of clothes and boots on an adequate statistical basis. Attempts were made in both the reports already referred to (Cd. 2337, pp. 52-65, and Cd. 6955, p. 307) and by the Committee on the Increase of the Cost of Living (Cd. 8980, pp. 21-3), and prices are collected monthly as in the case of food; but no really satisfactory information has been obtained and there is no evident way of using such data as there are; the *Labour Gazette* method resulted in a statement that the price of clothing increased 330 per cent. between July, 1914, and November, 1920, which is not in accordance with ordinary experience. When it is remembered that there is no good evidence (p. 52 above)

of the relative importance of clothing in working-class expenditure, it becomes clear that the measurement of the cost of living, including clothes, food, etc., presents very great difficulties.

For rent and fuel fairly adequate information is to be obtained from the sources already described; for miscellaneous expenditure neither the basis nor the information is adequate, nor in view of the great variety in needs and custom among households can an average have any very definite meaning.

The great divergence of views and evidence on the subject can be studied in the reports of the evidence before the Transport Workers Court of Inquiry, 1920. (Cmd. 936, 6s.; Cmd. 937, 3s.)

CHAPTER IV.—SOCIAL CONDITIONS.

1.—Unemployment.

For the records of unemployment prior to the Insurance Act of 1911 we have to depend primarily on the reports of trade unions to the Labour Department. These reports emanate from those unions which keep a record of their unemployed members, that is practically from unions which pay unemployment benefit. The resulting table given every month in the *Labour Gazette* shows the membership of the unions, classified in groups of trades, and the number of members unemployed at the end of each month, expressed also as a percentage of the membership.

In September, 1920, the unions concerned included 1,670,000 members, a very small proportion of the working-class, and of these over 600,000 were in the Engineering and Shipbuilding Trades. Building, cotton and mining are badly represented; agriculture, railways and other transport are not included at all. The unions are almost entirely those of skilled workmen. The account

is therefore very incomplete, but it has been found that when tested by other records in normal times, the movements of the resulting index reflects with fidelity the general state of unemployment, and it is believed that the percentage is fairly representative for the whole of industry.

In recent years we have also the records arising from the operation of the Insurance Act, also given monthly in the *Labour Gazette*. In July, 1920, 2,774,000 males and 208,000 females were insured under the Act of 1911 and also 814,000 males and 401,000 females under the Act of 1916, making a total of nearly 4,200,000 persons, *i.e.* 25 to 30 per cent. of all wage-earners. The measure of unemployment taken is the percentage that the number of unemployment books and out-of-work donation policies lodged with the Labour Exchanges forms of the total number insured in July. Engineering and shipbuilding account in September for 43 per cent. of the men, so that these industries dominate this as well as the trade union record ; in them the trade unions show 2.5 per cent. unemployed at the end of August, 1920, while the insurance account gives 3.6 per cent. ; if the figures could be studied in detail we might learn if the inclusion of labourers in the latter is responsible for the higher figure.

In the aggregates for the same month the insurance percentages are 2.65 for males and 4.18 for females, while the trade union return shows 1.6 for males. It should be remembered that the trades coming under the Insurance Acts are in some measure those where unemployment is prevalent, while the trade union returns exclude occupations where the burden of unemployment is too considerable for their funds. Both exclude some important occupations, such as railways, coal-mines, cotton (for the most part), where employment is nearly regular or times of depression are met by sharing out the work. Agriculture and domestic service are also included.

It will need a good deal of careful study in more normal times before the relationship of these measurements to each other and to occupation in general is fully known. Meanwhile the two, combined to avoid duplication, show that at least 106,000 men belonging to unions or insured were professedly willing and unable to get work in August, 1920.

In addition to these accounts we have records of the number of persons whose names stood on the registers of the Labour Exchanges, whether members of insured trades or not. It is, unfortunately, not possible to separate the numbers of insured from uninsured in the present form in which the monthly statement is made. Nor can we use the total records correctly for comparative purposes, since the position of the Labour Exchanges as means of finding employment has varied in the estimation of employers and workmen.

Other information in the *Labour Gazette* relating to employment includes accounts of the number paid in certain industries (see p. 48), the number of labourers employed in the London Docks, the number of seamen shipped, the number of shifts worked in the Iron and Steel Trades, the number of blast furnaces in operation, and, in recent months, the numbers employed in mines. There is also a summary for each industry of the general condition of trade during each month.

The great variety and uncoördinated nature of all this mass of material makes the task of getting any comprehensive idea of the stress of unemployment and still more of making an adequate comprehensive measurement one of extraordinary difficulty. These tables differ from those issued by Administrative Departments in that they are compiled solely for the information of the public and not as a record of departmental work. It is very unfortunate that no way has been found by which the mass of labour involved could be made of more direct utility.

2.—Old age pensions.

The official account of Old Age Pensions is to be found in the Reports of the Commissioners of Customs and Excise (*e.g.*, Tenth Report, Cmd. 503, price 1s. 6d.), following after the tables relating to the consumption of dutiable commodities and the revenue accruing therefrom. The reason for this curious procedure is that the Excise Officers are charged with the administration of the pensions. The figures are summarised in the Abstract of Labour Statistics. As the detailed records are rather inaccessible, it is well to give sufficient extracts to show what information is published.

The totals are made for the principal administrative districts, viz., the Metropolitan Boroughs, the County Boroughs, and the Administrative Counties (which exclude the County Boroughs) in England and Wales, for the Burghs with more than 50,000 inhabitants and the Counties in Scotland, and for the County Boroughs and Counties in Ireland. The pensioners are counted in the district in which they draw their pensions on a particular date. The population, as a whole, can only be approximately estimated at dates between the Censuses, and no attempt is made to ascertain the whole number of persons over 70 years old in the districts year by year, but the number there resident in April, 1911, is taken as a basis of comparison. By 1919 the number of persons over 70 years must be some 8 per cent. greater than in 1911, and the figures in the following table, showing the number of pensioners per 1,000 of persons over 70, should be reduced therefore about 8 per cent.

If we add 8 per cent. to the 1911 population, we find that of 479,000 men over 70 in England and Wales, 224,400, or 47 per cent., and of 678,000 women, 434,000, or 64 per cent., receive pensions. The corresponding percentages for Scotland are 43 and 59, and for Ireland, 49 and 60. The impression that pensions are more

readily obtained in Ireland than elsewhere seems to be erroneous.

OLD AGE PENSIONERS, MARCH 28TH, 1919.

	Number resident in area. 000s.			Per 1,000 of population over 70 years in 1911.
ENGLAND—	Men.	Women.	Total.	
London	19	49	68	541
Administrative Counties	138	237	375	620
County Boroughs ...	53	123	176	635
WALES—				
Administrative Counties	12	22	34	617
County Boroughs ...	2	4	6	645
SCOTLAND—				
Counties	21	41	62	575
Burghs with population over 50,000	7	19	26	569
IRELAND—				
Counties	66	89	155	580
County Boroughs ...	5	14	19	669
TOTALS—				
England and Wales ...	224	434	659	615
Scotland	28	60	88	573
Ireland	71	103	174	589
United Kingdom ...	323	597	920	606

The numbers of pensioners are here given to the nearest 1,000. Thus the total number in the United Kingdom was 920,000.

The lowest and highest numbers per 1,000 in the metropolitan boroughs are 303 (Chelsea) and 710 (Battersea), in the English Counties 524 (Surrey) and 725 (Huntingdon), in the English County Boroughs 368 (Bournemouth), and 828 (Bolton). The range is rather smaller in Scotland and in Ireland.

The whole cost in the year 1918-19 was £11,731,000 for ordinary pensions, an average of 4s. 11d. a week; the additional allowances brought the total to £17,727,000, and the average to 7s. 5d. a week.

In the next section it is seen that also a considerable number of persons over 70 years (perhaps 50,000) are in Poor Law Institutions, most of whom do not receive pensions.

3.—Pauperism.

The Local Government Board issues, or used to issue, monthly reports on the number of paupers, and a more detailed half-yearly statement (*e.g.*, H. of C. 278 of 1914, price 6d., from which the figures in this section are taken). The main source of information is a count in all institutions concerned of the numbers of persons in receipt of relief on the 1st January and the 1st July in each year. There is no systematic record for other days, nor can we tell for what period indoor or outdoor relief is granted, nor how often the same person or family applies for relief. Much concern is shown in the report about 140 persons out of 754,150 who received indoor and outdoor relief on the same day, but we are not told anything about the ages of persons between 16 and 70 years, and the division between persons who are ill or well is classified in so many apparently contradictory ways that we cannot be sure that the 9,281 men said to be able-bodied and not temporarily disabled are in any way fit for a day's work. It is because of the confusion throughout in definition and classification that a good deal of space is here given to exhibiting and co-ordinating the details that can be found in the report.

It must be remembered that in addition to the numbers receiving old age pensions, or indoor or outdoor relief, at the expense of the taxpayer and ratepayer, there are many in orphanages, schools, hospitals, almshouses and other homes supported by endowed foundations or private subscription, as well as those who depend on more casual charity. The official statistics afford no measure of the proportion of the population which is not self-supporting, and the variation in them from time to time may reflect changes of administration and

changes in other forms of help as well as the increase or decrease of poverty.

PERSONS IN RECEIPT OF PUBLIC RELIEF ON JANUARY 1ST, 1914, IN ENGLAND AND WALES.

	Men.	Women.	Children under 16 years.	Total.	Casuals.
INDOOR—					
In health	9,281	7,408			—
Temporarily disabled	17,401	12,916	68,039	243,913	—
Not able-bodied ...	81,857	47,011			—
Insane	8,731	10,072	1,576	20,379	—
	117,270	77,407	69,615	264,292	7,171
OUTDOOR—					
Relieved on account of personal sickness or accident	49,829	90,444			—
Sickness of, or accident to, wife or child	5,816	1,087	166,648	384,409	—
Women relieved with their husbands ...	—	36,187			—
Other causes	987	33,411			—
Insane	1,735	2,688	85	4,508	—
	58,367	163,817	166,733	388,917	397
County and other lunatic asylums	46,108	53,480	1,353	100,941	
Grand Total ...	221,745	294,704	237,701	754,150*	7,568

The grand total was 206 per 10,000 of the estimated population.

The only distinction by age, apart from the division at 16 years above which persons are called men or women, is at 3 years and 70 years. There were 27,920 men and 20,183 women aged over 70 who received indoor relief; these only are allowed old age pensions when in infirmaries, and they are generally paid to the institution towards their expenses. At the same time 3,627 men and 5,318 women over 70 received outdoor relief.

Of the 388,917 persons on outdoor relief, 20,731 received medical help only, and 11,596 were children boarded out.

* This total duplicates 140 persons, who were counted as indoor and outdoor paupers on the same day.

Of the 264,292 indoor paupers, 190,131 men or women and 22,372 children were in workhouses or workhouse infirmaries, 35,527 were in special institutions for children, and 16,262 were in institutions (hospitals, training schools, etc.—mainly for children) not provided for by the Poor Law Authorities, who, however, contribute to the expenses. These numbers for children do not agree with those in the following paragraphs.

Most of the sub-divisions enumerated so far are given for each Poor Law Union in England and Wales.

Considerable detail is shown as to the method of dealing with the 68,039 indoor children, not insane (pp. XII. and XIV. of Report).

NUMBER OF CHILDREN UNDER 16 IN INSTITUTIONS, JANUARY 1ST, 1914.

	All.	Under 3 years old.
In workhouses and infirmaries—		
Receiving wards	143	27
Infirmaries	4,802	1,925
Sick wards	4,696	2,079
Separate buildings for children ...	4,865	1,665
Other wards	6,247	2,441
	—— 20,753	—— 8,137
Separate institutions of the Poor Law Authorities—		
Block schools	9,708	
Group cottages	10,026	
Scattered homes	8,782	
Others	6,837	
	—— 35,353	
Other institutions—		
For the blind, deaf, &c.	1,325	
Hospitals, &c.	738	
Training ships	424	
Other	9,446	
	—— 11,933	683
Totals	68,039	8,820

In another place (p. VII.) it is stated that 31,943 children are inmates of separate institutions for children, and in the main table (p. 4) 35,527 are so shown, and

there are several other apparently inconsistent statements in the report, which is full of technical terms that are no doubt clear to the officials but whose different shades of meaning elude the uninitiated.

Besides persons receiving relief, the Poor Law Authorities are interested in the existence of "heads of families who were indirectly or constructively paupers by reason of indoor relief to a dependent (other than an insane dependent)." We are not told how many of these hypothetical paupers there are, nor is it clear how many persons are counted as paupers when a man is relieved on "account of sickness of or accident to a child," but they are included in the following table which is apparently intended to show how many families are relieved. Astute readers may be able to reconcile the totals with those already given.

INDOOR AND OUTDOOR RELIEF TO FAMILIES AND TO PERSONS RELIEVED SINGLY.

	Men.	Women.	Children.
Relieved without children—			
Singly	125,998	143,595	44,851
Married couples	24,933	24,933	—
Relieved with children—			
Married couples	14,977	14,977	43,725
Widowers	2,488	—	4,441
Men relieved without their wives	6,770	—	9,242
Widows	—	38,558	102,457
Women relieved without their husbands	—	9,216	23,204
Unmarried women	—	4,663	6,767
Totals	175,166	235,942	234,687

The children enumerated in the first line are orphans, deserted or foundlings.

4.—Miscellaneous.

After the study of the enormous totals of people who receive help from rates and taxes, it is well to turn

to the even greater numbers of those who have made some provision for themselves. The statistics of Friendly Societies, Co-operative Societies and of Trade Unions are summarized in the Abstract of Labour Statistics, and may be studied in more detail in the Reports of the Chief Registrar of Friendly Societies. The pre-war statistics relating to Trade Unions are no doubt out of date and it is to be hoped that more useful figures will soon be available. In 1911 the membership of Trade Unions was recorded as 3,010,954 ; unions with at least 1,470,000 members paid unemployment " benefit," and with at least 729,000 members paid sickness benefit. In 100 principal unions 18 per cent. of the expenditure in 1911 was for unemployment, 17½ per cent. for sickness and accident, 16½ per cent. for superannuation, 4½ per cent. for funerals, 12¾ per cent. for disputes, 7¾ per cent. for miscellaneous grants and benefits and 23 per cent. for working expenses. The membership of ordinary Friendly Societies (such as the Oddfellows and Hearts of Oak) was nearly 4,000,000, and that of co-operative, distributive and productive societies 2,778,000. This brief account by no means exhausts the records of thrift and insurance.

For education we have the reports of the Board of Education for England and Wales and of the corresponding authorities for Scotland and Ireland. The statistics are not very useful except for administrative purposes and for the study of special questions. They naturally refer only to schools supported wholly or partially out of public funds, and the number of school-children attending at various ages and in various kinds of schools tells us very little of the educational standards reached. Though it is evident from the records that the majority of children leave school as early as possible, it is not possible to give any clear account of the minority who carry their education further because secondary schools draw not only from the public elementary schools.

We cannot yet obtain any clear account of sickness and health, since there are (it is believed) no general statistics of hospitals, and that there has not yet been any general report of the working of the National Insurance Act. There is needed a careful and comprehensive study of the incidence both of sickness and of unemployment in occupation and at various ages, not only so as to make possible an intelligent study of remedies, but also for statistical purposes to compute the relationship between weekly and annual average earnings.

The only other important official accounts bearing on general social questions are those of crime and convictions, which need expert study before use.

Loxley Brothers Ltd. *Printers*, Gough Square, Fleet Street, London E.C.4